

DaimlerChrysler AG

Patent claims

5

1. A method of producing a peripherally closed hollow profile having a secondary feature and/or a branch, said hollow profile being shaped from a hollow profile blank by means of internal high pressure, whereupon the cap of
10 the secondary feature and/or of the branch is severed by means of a counterholding punch supporting the secondary feature or the branch during the shaping process, characterized in that the cap (11) of the secondary feature and/or of the branch (4) is severed at an
15 internal high pressure which corresponds at most to the forming pressure for forming the hollow profile (3) from the blank, the severing being effected solely by a stroke of the counterholding punch (5, 17) in the opposite direction to the expansion direction of the hollow
20 profile (3).

2. The method as claimed in claim 1, characterized in that the secondary feature and/or the branch (4), after the severing operation, by a plunging movement of the
25 counterholding punch (5, 17) into the opened secondary feature and/or the branch (4), is calibrated by means of a calibrating contour (18) corresponding to the shape of the secondary feature or of the branch (4).

30 3. A device for producing a peripherally closed hollow profile having a secondary feature and/or a branch, comprising a hydroforming tool for shaping the hollow profile and comprising a counterholding punch which is integrated in the forming tool in a displaceable manner
35 and supports the secondary feature or the branch during the shaping process, the counterholding punch being

driven in such a way that, after the shaping of the secondary feature and/or of the branch, it plunges into said secondary feature or said branch and in the process severs the cap of the secondary feature and/or of the
5 branch by means of a severing contour, characterized in that the end face (8) of the counterholding punch (5, 17) runs in a continuously even manner, in that the end edge (12, 21) of the punch (5, 17) forms the severing contour, and in that the width of the annular gap (22) between the
10 wall (14) of the passage (7), which is formed in the forming tool (2) and in which the punch (5, 17) is guided in a displaceable manner, and the punch circumference (13) corresponds approximately to the wall thickness of the secondary feature or of the branch (4).

15

4. The device as claimed in claim 3, characterized in that the punch end (15, 19) which contains the severing contour is of frustoconical design and has bevel surfaces (16) facing the secondary feature or the branch (4).

20

5. The device as claimed in either of claims 3 and 4, characterized in that the counterholding punch (5, 17) has a calibrating contour (18) which adjoins the punch end (15, 19) on the side facing away from the hollow
25 profile and is designed in accordance with the contour of the secondary feature or of the branch (4).

6. The device as claimed in claim 5, characterized in that an encircling collar (20) is formed on the
30 counterholding punch (17) and directly adjoins the calibrating contour (18) on the side facing away from the hollow profile.

7. The device as claimed in one of claims 3 to 6,
35 characterized in that the end edge (12, 21) of the counterholding punch (5, 17) is rounded.